AMENDMENTS TO THE CLAIMS:

Please cancel without prejudice claims 1-15 and add newly written claims 17-30 as follows.

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 – 16. (Cancelled)

17. (New) An imaging system comprising:

an aperture for receiving radiation from an object space;

an interferometer arranged such that radiation received through the aperture is incident thereon;

an array of detector elements for receiving output radiation from the interferometer;

a controller for scanning the interferometer through a range of different path lengths, for receiving signals from a plurality of elements of the array, for determining a spectral radiance value for each of a plurality of pixels, each pixel corresponding to one or more elements of the array, and for generating a grey scale image in accordance with the spectral radiance of each pixel; and

a polarimeter for receiving said radiation from the object space, wherein the controller combines data received from said polarimeter with data received from the array

of detector elements to obtain a score for each pixel, the score indicative of a level of interest for each pixel.

18. (New) A system as claimed in claim 17, wherein the controller contains a fusion algorithm stage for combining the data received from the array with data from the polarimeter.

19. (New) A system as claimed in claim 17, wherein the array of detector elements comprises a two-dimensional focal plane array.

20. (New) A system as claimed in claim 17, wherein the controller scans a plurality of times to obtain the spectral radiance of the pixels.

21. (New) A system as claimed in claim 17, wherein the scan of the interferometer is non-uniform.

22. (New) A system as claimed in claim 17, wherein the interferometer is a solid state device.

23. (New) A system as claimed in claim 22, wherein the interferometer comprises a material having a variable refractive index, wherein path length of one leg of the interferometer is altered by varying the refractive index of the material.

24. (New) A system as claimed in claim 17, wherein the controller includes a Fourier transform stage for obtaining the spectral radiance of each pixel.

25. (New) A system as claimed in claim 24, wherein the spectral radiance for a plurality of pixels is determined simultaneously.

26. (New) A system as claimed in claim 17, further comprising a display, wherein the spectral radiance value is processed to provide on the display a pseudo three dimensional cube with two perpendicular axes corresponding to the co-ordinates of the image and the third mutual perpendicular axis corresponding to wavelength of radiation received.

27. (New) A system as claimed in claim 17, wherein the controller includes an intro-array comparison stage which allocates each pixel a specific spectral content dependent at least in part upon the spectral radiance of other pixels.

28. (New) A system as claimed in claim 17, wherein the controller includes a histogram manipulation stage which operates on a spectral radiance value, a grey scale value being allocated to each pixel in accordance with the number of pixels having a value in any one range to maximise grey scale contrast.

29. (New) A system as claimed in claim 17, further comprising a camera for receiving radiation over the range of wavelengths of interest from the object space as radiation is received by the interferometer, the output of the camera providing intensity data which is combined by the processor with that received from the array of detector elements from the polarimeter to obtain a score for each pixel.

30. (New) A system as claimed in claim 17, further including an additional lens aperture, wherein said polarimeter receives light from the object space through said additional lens aperture.